

CASE STUDY

Location: Distribution Substation

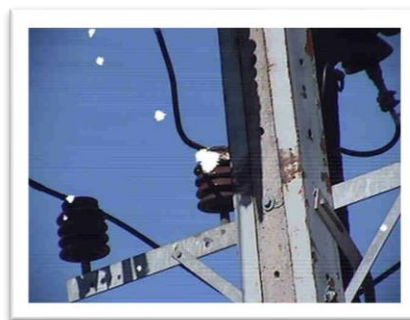
Issue: Intermittent problems on a 22kV line

Ambient conditions: Clear fine day with low humidity

We were inspecting a 22kv power line that was having intermittent problems.

At the start of the power line, the cable comes out from the substation underground and then up a concrete and steel pole to become an overhead line.

- When this line was constructed, the center phase standoff insulator was installed too close to the metal upright section of the pole.
- Either inclement weather or a bird has caused a flashover between the insulator and the pole, causing the line to trip out at the zone substation.
- Once power was restored, a visual inspection of the line failed to show up any defects.
- The line had tripped a few times since and then we were asked to inspect the feeder.
- We found no thermal faults; however, we found what appeared to be a very minor corona discharge on an insulator.
- On closer inspection, we found that this was the insulator that had been the cause of the intermittent outages.



- The left picture is the corona detected. The picture to the right is a close-up of the insulator using the zoom feature of the corona camera.
- The weather on this day was a clear fine day with low humidity and about 18 degrees Celsius. A day where **you would not expect to find any corona** on 22kv equipment.